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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,259	12/05/2001	Eun Kyu Jang	139-006	5360

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EXAMINER

MILLER, BRIAN E

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 05/02/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/007,259

Applicant(s)

JANG ET AL. 

Examiner

Brian E. Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☒ Claim(s) 26 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Claims 1-30 are pending.

***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s): (a) "at least one ground plane formed in said head arm collection," (b) "a disk drive read interface," (c) "a disk drive write interface," (d) "an analog interface," (e) a head slider (in the present invention) and its interconnection with the read and write differential wire pairs. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. Claims 26-27 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only and cannot depend from any other multiple dependent claim(s). See MPEP § 608.01(n). Accordingly, the claims 26-27 have not been further treated on the merits.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 7-12, 15-20, 23-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are replete with such language, *for example*:

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(a) Claim 1, line 5 the phrase “said head arm collection member” lacks antecedent basis.

Further, “each member” in line 4 also lacks antecedent basis;

(b) claim 5 (and similarly for claims 12, 15, 20), the metes and bounds of the claim cannot be ascertained, rendering it indefinite. “A disk drive” is not a part of a voice coil actuator arm.

Furthermore, it is not readily apparent if all limitations of claim 1 would be encompassed by claim 5, however, it is suggested to rewrite claim 5 into independent form to avoid confusion;

(c) claim 7 (and similarly for claims 9-10, 17-19), last line “as in claim 6” renders the claim indefinite. It is not readily apparent if all the limitations of claim 6 are encompassed thereby. It is suggested to rewrite claims 7, 9-10 into independent form to avoid confusion.

(d) claim 12, “the steps of claim 7” is indefinite. See the explanation in (b) & (c), above;

(e) claims 16-19, 21 “the apparatus” lacks antecedent basis;

(f) claims 23, 25, 29, 30 the phrase “as a product of the process of claim ?” is indefinite. The metes and bounds of the claims cannot be ascertained.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-7, 11-12, 14-15, 19-20, 22-24, 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Young (US 5,717,547). In so much as the claims are definite and understood, Young discloses a disk drive assembly (FIG. 1) which includes a voice coil actuator

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arm assembly 40, further including: multiple head arm members 46 which include a load beam/flexure assemblies 10/14, wherein each assembly includes a ground plane (col. 6, lines 34-38); a first 60A-60B and second 62A-62B pair of coplanar, parallel transmission paths parallel to the ground plane interconnecting both a read differential pair and write differential pair to a head slider 20 (see FIG. 5, and col. 5, lines 60-67, and col. 6, lines 39-53); analog interfaces are inherently part of such a structure, and it is further noted that two pairs of wires are provided on each head arm assembly as was conventional. It is also considered that the configuration of Young encompasses the method(s) as recited in the claims.

7. Claims 1, 3-7, 11-12, 14-15, 19-20, 22-24, 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Klaassen (US 5,608,591). In so much as the claims are definite and understood, Klaassen discloses a disk drive assembly (FIG. 1) which includes a voice coil actuator arm assembly 5, further including: multiple head arm members which include a load beam/flexure assemblies 21, wherein each assembly includes a ground/back plane 40; a first 36 and second 37 pair of coplanar, parallel transmission paths parallel to the ground plane interconnecting both a read differential pair and write differential pair to a head slider 10 (see FIG. 3, 5, 7B, and col. 7, line 63 to col. 8, line 14); analog interfaces are inherently part of such a structure, and it is further noted that two pairs of wires are provided on each head arm assembly as was conventional. It is also considered that the configuration of Young encompasses the method(s) as recited in the claims.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 2, 8-10, 13, 16-18, 21, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young in view of applicant's admitted prior art (AAPA), e.g., FIG. 2C-D.

Young does not expressly set forth a configuration of having a third and fourth pair of transmission paths on a head arm, however, the AAPA (FIG. 2C-D) shows that such a configuration is known (see also specification, page 2, lines 16-23). From this teaching, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided such a configuration on a head arm of Young. The motivation would have been: having two sets of transmission wires on one arm as opposed to one pair on two arms would have enabled a more compact arrangement, as would have been realized by a skilled artisan and as shown by the AAPA.

11. Claims 2, 8-10, 13, 16-18, 21, 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klaassen in view of applicant's admitted prior art (AAPA), e.g., FIG. 2C-D. Although Klaassen does set forth that other configurations are possible (see col. 8, lines 5-14),

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the specific transmission lines have not been expressly set forth. In view of the suggestion and in view of the AAPA, a configuration of having a third and fourth pair of transmission paths on a head arm, to appropriately accept a second slider configuration, would have been obvious to one having ordinary skill in the art at the time the invention was made. The motivation would have been: having two sets of transmission wires on one arm as opposed to one pair on two arms would have enabled a more compact arrangement, as would have been realized by a skilled artisan and as shown by the AAPA.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. including US Patents to Balakrishnan (5,737,152) which is configured with a ground plane and impedance matching wiring, and Khan et al (5,912,787) includes a channel to incorporate the transmission lines to obtain a low profile.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (703) 308-2850. The examiner can normally be reached on M-F 7:45am-5:15pm (FF off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.

A handwritten signature in black ink, appearing to read "B. Miller", written in a cursive style.

**Brian E. Miller**  
**Primary Examiner**  
**Art Unit 2652**

bem  
April 29, 2003